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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,189	09/03/2003	Gary R. Ashton	100201669-1	5161

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EXAMINER
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WILSON, CHRISTIAN D

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/654,189

Applicant(s)

ASHTON ET AL.

Examiner

Christian Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 22-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02072005_09032003</u> . | 6) <input checked="" type="checkbox"/> Other: <u>search history</u> .                   |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 22 – 31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on February 7, 2005.

2. Applicant's election with traverse of claims 1 – 21 in the reply filed on February 7, 2005 is acknowledged. The traversal is on the ground(s) that the search for the device and method would be the same. This is not found persuasive because the claimed method can be used to make a materially different product and therefore the method and device are distinct.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 – 6, 9 – 17, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Chaiken.

Chaiken (US 2004/0218499) discloses an ultra-high density data storage device [0023] comprising a phase-change data storage layer **202** capable of changing states in response to the beams from the emitters **104**, and a second layer **206** in the layered diode structure **200** comprising a material containing copper, indium, and selenium [0076].

Regarding claim 2, Chaiken further discloses a second layer of CuInSe doped with gallium [0076].

Regarding claim 3, Chaiken further discloses a layered diode structure **200**.

Regarding claim 4, Chaiken further discloses a phase-change material which is an indium selenide material [0074].

Regarding claim 5, Chaiken further discloses an  $\text{In}_x\text{Se}_{1-x}$  compound [0055].

Regarding claim 6, Chaiken further discloses a second layer doped with a p-type dopant [0076].

Regarding claim 9, Chaiken further discloses a silicon substrate **222**.

Regarding claim 10, Chaiken further discloses a detection element which is a photoluminescent device [claim 13].

Regarding claim 11, Chaiken discloses a data storage array [0023] comprising a silicon substrate **222**, a first diode layer **206** comprising a CuInSe material, and a second diode layer **202** comprising a phase-change material to form a diode junction **207**.

Regarding claim 12, Chaiken further discloses a second layer doped with a p-type dopant [0076].

Regarding claim 13, Chaiken further discloses a first diode layer comprising  $\text{CuInSe}_2$  [0076].

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Regarding claim 14, Chaiken further discloses a second layer of CuInSe doped with gallium [0076].

Regarding claim 15, Chaiken further discloses a second diode layer which is phase changeable between first and second states in response to an electron beam [0046].

Regarding claim 16, Chaiken further discloses a phase-change material which is an indium selenide material [0074].

Regarding claim 17, Chaiken further discloses an  $\text{In}_x\text{Se}_{1-x}$  compound [0055].

Regarding claim 21, Chaiken further discloses voltage connection points on opposite sides of the diode junction to impress a voltage across the junction [Figure 3].

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 7, 8, and 18 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaiken in view of Carlson *et al.*

Chaiken teaches the limitations of claims 1 and 11 as described above including an electrical connection to the diode layers and a substrate, but Chaiken does not describe a field layer comprising molybdenum or a soda lime substrate. Carlson *et al.* (US 6,784,361) teaches a field layer comprising molybdenum [column 3, line 62] and a soda lime glass substrate [column 6, line 67]. It would have been obvious to one of ordinary skill in the art to use the field layer and substrate of Carlson *et al.* in the device of Chaiken since the field layer and substrate of Carlson *et al.* provides a device with improved efficiency and reliability.

#### ***Conclusion***

7. A copy of the search history (EAST and STN) is enclosed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian Wilson whose telephone number is (571) 272-1886. The examiner can normally be reached on weekdays, 7:30 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christian Wilson, Ph.D.  
Primary Examiner  
Art Unit 2891

CDW